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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/542,911	07/21/2005	Shizuo Kitahara	4670-0108PUS1	9550
2292	7590	03/15/2006	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			TESKIN, FRED M	
			ART UNIT	PAPER NUMBER
			1713	

DATE MAILED: 03/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/542,911

Applicant(s)

KITAHARA ET AL.

Examiner

Fred M. Teskin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-13 is/are allowed.
- 6) ☒ Claim(s) 1,3-7,14-16 and 18-20 is/are rejected.
- 7) ☒ Claim(s) 2,3 and 17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>072105</u> . | 6) <input type="checkbox"/> Other: ____.  |

Claims 1-20 are currently pending and under examination.

Claim 3 is objected to because of the following informalities: "wh[e]rein" is misspelled. Appropriate correction is required.

Applicant is advised that should claim 18 be found allowable, claim 19 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k). The sole difference in wording resides in the statement of intended use in claim 19 for the coating agent according to claim 18 (i.e., "for hydrocarbon thermoplastic resin"). Positively stating what class of resin the coating agent is to be used for is not seen to create a substantive difference in scope between the two claims.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-7, 14-16 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5498657 to Sugiyama et al ("Sugiyama").

The claimed subject matter is a polar group-containing cyclized rubber, having a polar group at a terminal of a polymer chain thereof and having a number-average molecular weight of 1,000 to 1,000,000.

Sugiyama discloses a fluorine-containing polymer composition suitable for coating applications, the polymer being characterized by having fluorine-containing cyclic structure on its main chain and by having a reactive group, such as hydroxyl or carboxyl, at a terminal (see, col. 1, lines 8-9, 53-56; col. 2, lines 13-20; and col. 3, line 56 to col. 4, line 2). The "cyclized" term of claim 1 is considered to require nothing more than the presence of some cyclic structure in a polymer chain of a polar group-containing cyclized rubber.

Sugiyama does not expressly describe the fluorine-containing polymer (also referred to as polymer A) as a rubber; nevertheless the description presented in Example 20 details a polymer solution G prepared from a specific species of polymer A having a Tg of 160°C, a value well within the applicants' claimed range for glass transition temperature (see col. 20, lines 63-65 and *cf.*, claim 4). The identity of glass

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transition temperature and cyclic structure justifies an inference that the disclosed species is inherently a rubber as claimed.

As such, Sugiyama differs from the claimed invention only in that a polar group-containing cyclized rubber having a number average molecular weight within the claimed range is not specifically disclosed.

However, as to molecular weight, see column 7, lines 25-28 where a useful coating material is characterized as one having a number average or weight average molecular weight of from about  $10^3$  to  $10^7$ , more preferably from  $10^4$  to  $5 \times 10^6$ .

Applicants' claimed number average molecular weight range overlaps substantially the range disclosed by Sugiyama and therefore is rendered obvious by Sugiyama.

In cases involving overlapping ranges, such as the present case, it has consistently been held that even a slight overlap in range establishes a *prima facie* case of obviousness; see, e.g., *In re Woodruff*, 16 USPQ2d 1936 (claimed invention rendered obvious by prior art reference whose disclosed range ("about 1-5% carbon monoxide") abutted the claimed range ("more than 5% to about 25%" carbon monoxide) and *In re Geisler*, 43 USPQ2d at 1365 (acknowledging that claimed invention rendered *prima facie* obvious by prior art reference whose disclosed range (50-100 Angstroms) overlapped the claimed range (100-600 Angstroms)).

As to the dependent claims rejected, the relevant limitations are disclosed by Sugiyama or obvious from the teachings thereof. Thus, as to claim 4, note the teaching of at least 20 % of repeating units having the cyclic structure (col. 2, lines 61+), which is seen to correspond to a cyclization ratio as claimed. As to claim 5, Sugiyama describes

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a solvent mixture for dispersing the polymer A which is said to make it possible to *prevent* gellation (col. 2, lines 3-10). Polar groups within claims 6 and 7 also are specifically disclosed as noted above. As to claims 15, 16 and 18-20, coating compositions comprising the polymer A and another fluorine-containing polymer are proposed. See column 15, lines 10-30 where combinations of the polymer A and various specific fluorine-containing polymers are disclosed, each of which is considered to qualify as a "polymer-molding material" within claims 15-16; i.e., the fluorine-containing polymers are molded in the sense of being shaped to form coatings and films as detailed at column 15, line 32 to column 16, line 30.

The prior art made of record and not relied upon is considered pertinent to applicants' disclosure.

Yoshizawa et al is pertinent to the production of cyclized polydiene. The provision of a polar group at a terminal of a polymer chain of the cyclized polydiene is not taught nor suggested.

Lubowitz is pertinent to thermosetting cyclized polydiene resins. As per column 6, lines 20+, cyclization occurs during a curing reaction to form hard *resin*.

Kennedy is pertinent to the production of thermoplastic elastomers having an polyisobutylene block and partially cyclized diene blocks.

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Claims 2 and 17 are objected to as being dependent on a rejected base claim but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claim.


Claims 8-13 are allowable. Examiner has not, as of the date of this Office action, located or identified any prior art documents that can be used to render the claimed process for producing a polar group-containing cyclized rubber anticipated or obvious to a person of ordinary skill in the art.

Any inquiry concerning this communication should be directed to Examiner F. M. Teskin whose telephone number is (571) 272-1116. The examiner can normally be reached on Monday through Thursday from 7:00 AM - 4:30 PM, and can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The appropriate fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

FMTeskin/03-11-06

  
FRED TESKIN  
PRIMARY EXAMINER  
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